Cooperative State Research, Education, and Extension Service
United States Department of Agriculture

Plant Protection Portfolio: Internal Review

For the period 2004-2005

For: USDA Goal 3. Enhance Protection and Safety of the Nation's Agriculture and Food Supply

CSREES Objective 3.2A. Develop and Deliver Science-based Information and Technologies to Reduce the Number and Severity of Agricultural Pest and Disease Outbreaks

DRAFT Internal Review Portfolio 3.2A (September 27, 2006)

I. Background

- **The following knowledge areas (KAs) are included in Portfolio 3.2A.**
  - 211 Insects, Mites, and Other Arthropods Affecting Plants
  - 212 Pathogens and Nematodes Affecting Plants
  - 213 Weeds Affecting Plants
  - 214 Vertebrates, Mollusks, and Other Pests Affecting Plants
  - 215 Biological Control of Pests Affecting Plants
  - 216 Integrated Pest Management Systems

When the portfolio was first reviewed? The External PREP panel conducted an on-site review of this portfolio in February of 2005.

Portfolio score from the PREP in 2005.

Portfolio 3.2A, Plant Protection, received an overall score of 80 from the panel in the 2005 PREP. **Table I-2** below shows the panel scores for each area together with the panel recommendation(s) (as paraphrased by the Office of Planning and Accountability).

Table I-2. Scoring of 3.2A Plant Protection PREP Expert Panel

Criteria	Recommendations	Previous Score	Current Score
Relevance (40%)	**Total Relevance Score >>>>**	**2.6 (35%)**	**2.82**
1. Scope coverage of work of portfolio	1. Balance the scope by identifying major issues that are relevant to the portfolio but were not covered.	3	3
2. Focus on critical needs	1. To maintain focus, increase the amount of measurable information that can be evaluated across all areas and the number of funding sources for all areas.	2	2.5
3. Emerging Issues	No recommendations from the panel.	3	3
4. Integration of REE	1. Integrate research and extension more and incorporate higher education in other areas. 2. Increase the amount of evidence of extension and higher education in all areas.	2	2.2
5. Multi-disciplinary balance of the portfolio	1. Balance the number of plant professionals among all knowledge areas (KAs), Kas should have an equal distribution of contributing plant researchers, extension professionals and educators.	2	3
Quality (30%)	**Total Quality Score >>>>**	**2.2 (22%)**	**2.64**
1. Significance of findings	1. Clarify if outputs and outcomes information are being received by end-users.	2	2.5
2. Stakeholder (constituents) inputs to the portfolio	1. A systematic method needs to be developed to get information into the hands of end-users. 2. Additional end-user workshops need to be conducted. 3. Information and input from state partners should be used.	2	2.5
3. Alignment of portfolio (with current science-based knowledge)	1. Ensure that there is evidence of alignment in other sciences.	3	3
4. Methodology appropriate	1. Increase evidence that all KAs are using cutting edge technology for generating, gathering, and analyzing data.	2	2.7

Table I-2. (Continued) Scoring of 3.2A Plant Protection PREP Expert Panel			
Criteria	**Recommendations**	**Previous Score**	**Current Score**
Performance (30%)	**Total Performance Score >>>>**	**2.3 (23%)**	**2.46**
1. Productivity	1. Panels should have measures of productivity per dollar spent.	3	3
2. Comprehensiveness	1. Increase evidence of KA comprehensiveness. 2. Outputs reporting should be more comprehensive.	2	2
3. Timeliness	1. Provide adequate evidence for project completion time.	2	2
4. Agency guidance	1. Provide efficient and comprehensive information concerning the Portfolio's management process. 2. Better define NPLs management responsibilities.	2	2.7
5. Accountability	1. Increase the amount of sufficient data used for evaluating the Portfolio's accountability.	2	2.2
Overall score		**80**	**88.6**

Summary and Conclusions of the PREP Panel. Overall the panel concluded that the Plant Protect related-program of the CSREES was very impressive and the quality of the work was good. The Panel sensed that the Plant Protection Portfolio was well integrated and found it to be impressive. With respect to funding, the fact that CSREES only has a 4 percent administrative cost was viewed as remarkable. The Panel believed that, for the amount of funding provided and invested, the National Program Leaders (NPLs) do a great job. The Panel also recognized IR-4 reporting, SARE partnerships, The Plant Diagnostic Network, IPM Regional Centers, and the Invasive Weeds program as areas of particular visibility and success.

The panel recognized that NPLs have many responsibilities and are very busy, but their dedication to a high quality product and the portfolio review process was evident. The PREP panel also recognized that significant time and effort was invested into putting the portfolio self-study together and this was appreciated by the Panel. Also, the honeycomb feature was regarded as especially creative and useful. It was well received among Panel members as an effective tool to describe working relationships and program interactions. Panel comments addressed the specific areas of the portfolio in order to score the portfolio using the PART as required. Areas within sections of the portfolio where the panel had specific comments have been restated in the form of recommendations by the Office of Planning and Accountability.

National Program Leaders working across areas related to Plant Protection have addressed these "recommendations" and have completed a revised update and a self-score for the Portfolio within this document.

II. CSREES response to PREP recommendations that cross all portfolios

In response to directives from the Office of Management and Budget (OMB) of the President, CSREES implemented the Portfolio Review Expert Panel (PREP) process to systematically review its progress in achieving its mission by implementing the Portfolio Review Expert Panel (PREP) process. Since this process began in 2003 eleven expert review panels have been convened and each has published a report offering recommendations and guidance.

These external reviews occur on a rolling five year basis. In the four off-years an internal panel is assembled to examine how well CSREES is addressing the external panel's recommendations. These internal reports are crafted to specifically address the issues raised for a particular Portfolio. However, despite the fact that the external reports were all written independent of one another on Portfolios comprised of very different subject matter, several themes common to the set of review reports have emerged. This set

of issues has repeatedly been identified by Portfolio Review Panels and requires an agency-wide response. The agency has taken a series of steps to effectively respond to those overarching issues.

Issue I : Getting Credit When Credit is Due

For the most part panelists were complimentary when examples showing partnerships and leveraging of funds were used. However, panelists saw a strong need for CSREES to better assert itself and its name into the reporting process. Panelists felt that, often times, principal investigators who conduct the research, education and extension activities funded by CSREES do not highlight the contributions made by CSREES. Multiple panel reports suggested CSREES better monitor reports of its funding and ensure that the agency is properly credited. Many panelists were unaware of the breadth of CSREES activities and believe their lack of knowledge is partly a result of CSREES not receiving credit in publications and other material made possible by CSREES funding.

Issue I: Agency Response:

In 2005, in an effort to address the issue of lack of credit being given to CSREES for funded projects, the Agency implemented several efforts likely to improve this situation.

First it developed a standard paragraph about CSREES's work and funding that project managers can easily insert into documents, papers and other material funded in part or entirely by CSREES. Second, the Agency is in the process of implementing the "One Solution" concept. The One Solution will allow for the better integration, reporting and publication of CSREES material on the web. In addition, the new Plan of Work, centered on the Logic Model framework, became operational in June 2006. The Logic Model framework is discussed in more detail below. Because of the new Plan of Work requirements and the Plan of Work Training conducted by the Office of Planning and Accountability (also described in more detail below), it will be simpler for state and local partners to line up the work they are doing with agency expenditures. This in turn will make it easier for project managers to cite CSREES contributions when appropriate.

Issue II: Partnership with Universities

Panelists felt that the concept of partnership was not being adequately presented. Panelists saw a need for more detail to be made available. Questions revolving around long-term planning between the entities were common as were ones that asked how the CSREES mission and goals were being supported through its partnership with University partners and vice versa.

Issue II: Agency Response:

CSREES has taken several steps to strengthen its relationship with University partners. First, to the extent possible, implementing partners will be attending the CSREES strategic development exercise which is intended to help partners and CSREES fully align what is done at the local level. Second, CSREES has realigned the state assignments for its NPLs. Each state is now assigned to one specific NPL. By reducing the number of states on which any individual NPL is asked to concentrate and assigning and training NPLs for this duty, better communication between state and NPL leaders should occur. Finally, several trainings that focused on the POW were conducted by CSREES in geographic regions throughout the country. A major goal of this training was to better communicate CSREES goals to state leaders which will facilitate better planning between the universities and CSREES.

Issue III: NPLs

Without exception the portfolio review panels were complimentary of the work being done by NPLs. They believe NPLs have significant responsibility, are experts in the field and do a difficult job admirably. Understanding the specific job functions of NPLs was something that helped panelists in the review process. Panelists did however mention that often times there are gaps in the assignments given to NPLs. Those gaps leave holes in programmatic coverage.

Issue III: Agency Response:
CSREES values the substantive expertise National Program Leaders bring to the Agency and therefore requires all NPLs to be experts in their respective fields. Given the budget constraints often faced by the agency, the agency has not always been able to fund needed positions and had to prioritize its hiring for open positions. In addition, because of the level of expertise CSREES requires of its NPLs, filling vacant positions quickly is not always possible. Often CSREES is unable to meet the salary demands of those it wishes to hire. It is essential that vacant positions not only be filled but with the most qualified candidate.

Operating under these constraints and given inevitable staff turnover, gaps will always remain. However, the establishment and drawing together of multidisciplinary teams required to complete the Portfolios has allowed the Agency to identify gaps in program knowledge and ensure that these needs are addressed in a timely fashion. To the extent that specific gaps are mentioned by outside panel experts heightens the urgency to fill them.

Issue IV: Integration
Lack of integration has been highlighted throughout the panel reviews. While review panelists certainly noted in their reports where they observed instances of integration, panel reports almost without fail sought more documentation in this regard.

Issue IV: Agency Response:
Complex problems require creative and integrated approaches that cut across disciplines and knowledge areas. CSREES has recognized that need and has undertaken steps to remedy this situation. CSREES has recently mandated that up to twenty percent of all NRI funds be put aside specifically for integrated projects. These projects cut across functions as well as disciplines and ensure that future Agency work will be better integrated. Finally, integration is advanced through the Portfolio process which requires cooperation across units and programmatic areas.

Issue V: Extension
While most panels seemed satisfied at the level of discussion that focused on research, the same does not hold true for extension. There was a call for more detail and more outcome examples based upon extension activities. There was a consistent request for more detail regarding not just the activities undertaken by extension but documentation of specific results these activities achieved.

Issue V: Agency Response:
Outcomes which come about as a result of Extension are, by the very nature of the work, more difficult to document than the outcomes of a research project. CSREES has recently shuffled its strategy of assigning NPLs to serve as liaisons for states. In the past one NPL might serve as a liaison to several states or a region comprised of states. Each state will be assigned a specific NPL and no NPL will serve as the lead representative for more than one state. This will ensure more attention is paid to Extension activities.

In addition CSREES has also been in discussion with partners and they have pledged to do their best to address this issue. The new POW will make Extension based results and reporting a priority. With heavy emphasis being place on logic models by CSREES, this will have the effect of

necessitating the inclusion of Extension activities into the state's POWs. This in turn will require more reporting on Extension activities and allow for the improved documentation of Extension impact.

Issue VI: Program Evaluation

Panelists were complimentary in that they saw the creation of the Office of Planning and Accountability and portfolio reviews as being the first steps towards more encompassing program evaluation work. However, they emphasized the need to see outcomes and often times stated that the scores they gave were partially the result of their own personal experiences rather than specific program outcomes documented in the portfolios. In other words, they know first hand CSREES is having an impact but would like to see more systematic and comprehensive documentation of this impact in the reports.

VI: Agency Response:

The effective management of programs is at the heart of the work conducted at CSREES and program evaluation is an essential component of effective management. In 2003 the Portfolio Review Expert Panel and subsequent internal reviews was implemented. Over the past three years eleven portfolios have been reviewed by external panel members and each year this process improves. National Program Leaders are now familiar with the process and the staff of the Planning and Accountability unit has implemented a systematic process for pulling together the material required for these reports.

However, simply managing the process more effectively is not sufficient for raising the level of program evaluations being done on CSREES funded projects to the highest standard. Good program evaluation is a process that requires constant attention by all stakeholders and the agency has focused on building the skill sets of stakeholders in the area of program evaluation. The Office of Planning and Accountability has conducted trainings in the area of evaluation for both National Program Leaders and for staff working at Land grant universities. These trainings are available electronically and the Office of Planning and Accountability will be working with National Program Leaders to deliver these trainings to those in the field.

The Office of Planning and Accountability is working more closely than ever with individual programs to ensure successful evaluations are developed, implemented and the data analyzed. Senior leadership at CSREES has begun to embrace program evaluation and over the coming years CSREES expects to see state leaders and project directors more effectively report on the outcomes of their programs as they begin to implement more rigorous program evaluation. The new Plan of Work system ensures data needed for good program evaluation will be available in the future.

Issue VII: Logic Models

Panelists were consistently impressed with the logic models and the range of their potential applications. They expressed the desire to see the logic model process used by all projects funded by CSREES and hoped not only would NPL's continue to use them in their work but, also, that those conducting the research and implementing extension activities would begin to incorporate them into their work plans.

Issue VII: Agency Response:

Logic models have become a staple of the work being done at CSREES and the Agency has been very proactive in promoting the use of logic models to its state partners. Two recent initiatives highlight this. First, in 2005, the Plan of Work (POW) reporting system into which states submit descriptions of their accomplishments was completely revamped. The new reporting system now closely matches the logic models being used in Portfolio reports. Beginning in Fiscal year 2007 states will be required to enter all of the following components of a standard logic model. These components include describing the following:

- Program Situation
- Program Assumption
- Program Long Term Goals
- Program Inputs which include both monetary and staffing
- Program Output which include such things as patents
- Short Term Outcome Goals
- Medium Term Outcome Goals
- Long Term Outcome Goals
- External Factors
- Target Audience

The system is now operational and states are started using it June, 2006. By requiring the inclusion of the data components listed above, states are in essence, creating a logic model which CSREES believes will help better improve both program management and outcome reporting.

The second recent initiative by CSREES regarding logic models concerns a set of trainings conducted by Planning and Accountability staff. In October and November of 2005 four separate training sessions were held in Monterrey, California, Lincoln, Nebraska, Washington D.C. and Charleston, South Carolina. More than two hundred people representing land grant universities attended these trainings where they were given training in logic model creation, program planning and evaluation. Additionally, two training sessions were provided to NPLs in December 2005 and January 2006 to further familiarize them with the logic model process. Ultimately it is hoped these representatives will pass on to others in the land grant system what they learned about logic models thus creating a network of individuals utilizing the same general approach to strategic planning. These materials have also been made available to the public on the CSREES website.

III. CSREES response to PREP recommendations regarding portfolio 3.2A Plant Protection

This self-study update and report is a response by NPLs responsible for portfolio 3.2A to issues identified by the PREP specifically within the 3.2A portfolio site review. Collectively we have reached consensus and have re-scored the portfolio sections to respond to all issues raised by the panel. Our responses and the associated evidence supporting the update to the portfolio are organized to be aligned with the PREP panel score sheet used in February of 2005. In addition, we have addressed concerns raised by this panel regarding future directions for CSREES as highlighted in the PREP Review Report including: Funding, Leadership, Partnerships, Review Period, and NPL Roles and Responsibilities. A bulleted list of items/topics that have been updated is included in Section III-1.

1. List of updates of the self-assessment paper

- The Plant Protection Portfolio (Goal 3.2A) self-assessment paper prepared for the external Portfolio Review Expert Panel (PREP) has been updated to include significant changes which have occurred over the period of FY 2004 and FY 2005. This list is provided below.

    1. Data summary Tables for the portfolio KAs have been updated to include FY 2004 and 2005 to bring the portfolio up to date. These data tables are appended at the end of this self-study paper.

2. Portfolio Logic models have been revisited and updated where we thought this was appropriate. Those logic models are also included at the end of this self study.

3. Activities of National Program Leaders involved in this portfolio have been categorized and summarized to illustrate the engagement of NPLs across the scope of the portfolio knowledge areas. (This is in response to recommendations from the external panel.)

4. We have addressed recommendations in areas of the portfolio where the PREP panel score was below 3. Responses to the specific recommendations are included in **Table I-2** as they pertain to the overall portfolio.
5. We have conducted an internal assessment of the panel score and have rescored the portfolio based on this assessment. The new score and justification for changes in the score are included in this self-study update. (see below)

6. We have provided a brief analysis of changes in funding that have occurred within the portfolio KAs for funding sources which make up the total dollars dedicated to this portfolio.

7. Significant accomplishments/impacts have been selected as representative of the work included in this portfolio for FY 2004 and FY 2005.

- Analysis of changes in funding (trends) for the KAs within the portfolio. This analysis is based on a comparison of financial data presented in the updated Tables for FY 2004 and 2005 to the data Tables from the 2004 self-study document.

- Significant accomplishments/impacts of work to highlight progress for the each KA in this portfolio have been included as a supplementary document on CD.
    - These updated accomplishments/impacts include research, extension and education. The examples are taken from databases including both 2004 and 2005. For these accomplishments/impacts, we have sought (wherever possible) a balance in sources of funding (competitive, formula, congressional earmarks). Examples have been extracted from CRIS, POW Accomplishments or other CSREES and partner publications. Wherever possible these accomplishments are linked to the funding source and/or the database (e.g., CRIS).
    - **Research** accomplishments/impacts include the CRIS accession #, source of funding and supporting information, whenever possible (e.g., pdf of publication, patent, etc.)
    - **Extension** accomplishments have also included the source. E.g., POW accomplishment report, Ext. publication, web site, etc.
    - **Education** accomplishments have included course/curriculum development, publications pertinent to academic offerings (e.g., texts) and institutional/departmental reviews led/facilitated/participated in by KA members.

- Responses to the specific recommendations are included in **Table III-1** as they pertain to this portfolio. Per the instructions these responses are brief and somewhat generic, since they represent the responses to the overall portfolio and may not be specifically pertinent to all KAs within the portfolio. Responses take the broad view of the portfolio and not the detail of each KA.

Table III-1. PREP panel recommendations and response based on the internal CSREES panel assessment and re-scoring.

Objective 3.2A Plant Protection			
R & D Criteria	**Specific Criteria**	**Panel Recommendations**	**Agency Response**
Relevance	Scope	2. Balance the scope by identifying major issues that are relevant to the portfolio but were not covered.	The Previous external panel score was 3. The National Program Leaders involved in the direction and management of this portfolio will continue to strive for balance across all areas of the portfolio.
	Focus	2. To maintain focus, increase the amount of measurable information that can be evaluated across all areas and the number of funding sources for all areas.	The Previous external panel score was 2. Portfolio personnel are seeking a balanced, uniform representation of accomplishments and impacts from all areas of the Portfolio, including all Knowledge Areas. Balance across funding sources and the primary functions, research, education and extension, are represented in the annual update.
	Emerging Issues	No recommendations from the panel.	The Previous external panel score was 3. We are continuing to place a high priority on identification and support for emerging issues that are significant for plant protection.
	Integration	1. Integrate research and extension more and incorporate higher education in other areas. 2. Increase the amount of evidence of extension and higher education in all areas.	The Previous external panel score was 2. We have provided further and more comprehensive current examples of integration of both functions and disciplines involved in Plant Protection with this update. Reporting through a variety of sources tracks activities that are integrated research, education and extension. Both existing competitive grant programs (such as the NRI and the 406 integrated programs) and proposed Hatch and McIntire-Stennis competitive programs place a high priority on integrated research, education and extension projects.
	Multidisciplinary Balance	2. Balance the number of plant professionals among all knowledge areas (KAs), KAs should have an equal distribution of contributing plant researchers, extension professionals and educators.	The Previous external panel score was 2. With recent retirements and position shifts within the agency and the occurrence of vacancies to be filled at the National Program Leader level we have sought further balance in the senior staff with respect to disciplines involved in both plant production and protection. One entomologist was replaced by a plant pathologist (with particular expertise in plant disease diagnostics and extension and applied IPM). We have added a shared faculty member for organic agriculture to meet a growing need that crosses both plant production and plant protection.

Objective 3.2A Plant Protection			
R & D Criteria	**Specific Criteria**	**Panel Recommendations**	**Agency Response**
Quality	Significance of Outputs and Findings	2. Clarify if outputs and outcomes information are being received by end-users.	The Previous external panel score was 2. We are focusing on reporting significant impacts of work supported by CSREES on end-users. Measurable impact stories are captured in Plan of Work accomplishments reports, CRIS impact statements and through impact reporting by multi-state research/extension committees. The Science and Impact web page reports impacts of work on issues funded through CSREES that are important at the local level.
	Stakeholder Input	1. A systematic method needs to be developed to get information into the hands of end-users. 2. Additional end-user workshops need to be conducted. 3. Information and input from state partners should be used.	The Previous external panel score was 2. Discovery and implementation research gets into the hands of end-users through Cooperative Extension system educational programs and to students through formal academic educational programs of our partner institutions. CSREES facilitates these activities through a variety of funding mechanisms. CSREES NPLS participate in stakeholder sessions that include research, extension and academic faculty, as well as agricultural commodity, community and trade groups. Within the limits of existing funds we are trying to engage in additional workshops and information exchange opportunities to maximize our interactions with diverse stakeholder interests. A number of newer, more cost-effective methods are being employed, including webcasts and video-linked conference calls.
	Portfolio Alignment	1. Ensure that there is evidence of alignment in other sciences.	The Previous external panel score was 3. The NPLs involved in the direction and management of this portfolio will continue to strive for alignment with other sciences across all areas of the portfolio.

Objective 3.2A Plant Protection			
R & D Criteria	**Specific Criteria**	**Panel Recommendations**	**Agency Response**
Quality (Continued)	Appropriate Methodology	2. Increase evidence that all KAs are using cutting edge technology for generating, gathering, and analyzing data.	The Previous external panel score was 2. The plant protection portfolio of programs fund activities that include important cutting edge technologies ranging from new applications for applied mission-oriented problems to development of new methods of analysis and discrimination for emerging pests and diseases that might have adverse effects on the Nations agricultural bio-security. Examples included as evidence in this update include GIS/GPS technology used in precision application of pest management tactics, DNA barcoding for high throughput screening and identification of potential pest species, sophisticated and advanced pest modeling, decision support software for end-user pest management programs at the farm or grower level, and rapid forecasting tools for pest prediction.

Objective 3.2A Plant Protection			
R & D Criteria	**Specific Criteria**	**Panel Recommendations**	**Agency Response**
Performance	Portfolio Productivity	2. Panels should have measures of productivity per dollar spent.	The Previous external panel score was 3. We continue to examine ways to measure the productivity of our programs per dollar spent so we continue to maximize the return on the investment of Federal dollars.
	Portfolio Comprehensiveness	1. Increase evidence of KA comprehensiveness. 2. Outputs reporting should be more comprehensive.	The Previous external panel score was 2. For this update, and for all future reporting and evaluation updates, we have established sub-groups of National Program Leaders within the portfolio to ensure that reporting for each Knowledge Area follows the same guidelines and reporting parameters across the portfolio. In this way we will report equally with highly significant accomplishments, outputs, outcomes and impacts for each area of the portfolio.
	Portfolio Timeliness	1. Provide adequate evidence for project completion time.	The Previous external panel score was 2. While the panel believed that most projects were completed on time, evidence that this is the case was not presented. Over time, with development of better reporting, tracking and information synthesis capabilities that are currently underway we will be able to provide more concrete statistics on the percentage of projects meeting this desired objective. (see: Agency Response to Appropriate Methodology, below).
	Agency Guidance	1. Provide efficient and comprehensive information concerning the Portfolio's management process. 2. Better define NPLs management responsibilities.	The Previous external panel score was 2. Most the management processes and the management responsibilities of National Program Leaders are the same for all portfolios across the Agency. For future external PREP (Portfolio Review Expert Panel) site reviews more extensive background information on program management and roles of individuals involved in the portfolio will be presented.

Objective 3.2A Plant Protection			
R & D Criteria	**Specific Criteria**	**Panel Recommendations**	**Agency Response**
Performance (Continued)	Portfolio Accountability	2. Increase the amount of sufficient data used for evaluating the Portfolio's accountability.	The Previous external panel score was 2. CSREES Is investing a significant effort and resources to improve our ability to extract and synthesize data to increase our level of accountability. The One-Solution initiative provides the focal point for these efforts. One-Solution will incorporate and improve existing databases for reporting currently in use such as the Current Research Information System (CRIS), the web-based Plan of Work reporting system, and other reporting systems in use. The Science and Education Impact reporting system search capability is currently being improved. The internal grant reporting and tracking system CREEMS and the web-based Peer Review System are also improving over time and will enable better reporting and tracking of both competitive and non-competitive grants. CSREES has established an internal group, the Planning and Accountability Team (PACT), under the leadership of the Associate Administrator, to guide and oversee development of planning and evaluation activities across the Agency in a systematic manner.

- Our estimated score (1-3) for each of the scoring categories (see Attached Table from P and A with the PREP [Portfolio Review Expert Panel] scores) is included in the self-scoring document. We have assigned values between the whole numbers to one decimal place (e.g., 2.5) to show incremental progress. Where the National Program Leaders involved in this Goal area (3.2A) have reached consensus on a change (either up or down) we have provided a *brief* rationale for the change. Consensus scores for the portfolio were derived in a meeting of all portfolio participants at a meeting arranged by the CSREES Planning and Accountability Unit. Section III below details the changes and the basis for changes for each area of the self-assessment scoring template provided.

2. 2006 score changes for 3.2A portfolio

The 3.2A portfolio internal review team has changed the following scores from 2005 as follows.

Relevance – Focus

To maintain focus, increase the amount of measurable information that can be evaluated across all areas and the number of funding sources for all areas.

2006 Score: 2.5.
2005 Score: 2

Rationale:

Portfolio personnel are seeking a balanced, uniform representation of accomplishments and impacts from all areas of the Portfolio, including all Knowledge Areas. Balance across funding sources and the primary functions, research, education and extension, is represented in the annual update examples. While we do not believe we have reached the goal of a score of 3, we believe we have demonstrated improvement through more balanced examples and have scored our efforts at 2.5.

Integration of Research, Education and Extension

Integrate research and extension more and incorporate higher education in other areas.
Increase the amount of evidence of extension and higher education in all areas.
2006 Score: 2.2
2005 Score: 2.0

Rationale:

Portfolio personnel have made a concerted effort to incorporate more education and extension work into the evidence presented for the overall portfolio. We believe we have made significant progress in reporting accomplishments in extension. However, we also acknowledge that we have still not integrated higher education accomplishments into the portfolio. We believe this is a significant issue for the entire agency to address since higher education programs seem to operate in isolation within the agency. Because we have made significant progress in incorporating extension work we have scored the area at 2.2, an increase from the previous reporting period. However, we acknowledge that we have a challenge in reporting accomplishments related to higher education.

Relevance – Multidisciplinary Balance

Balance the number of plant professionals among all knowledge areas (KAs), KAs should have an equal distribution of contributing plant researchers, extension professionals and educators.

2006 Score: ___

2005 Score: 2

Rationale:

With recent retirements and position shifts within the agency and the occurrence of vacancies to be filled at the National Program Leader level we have sought further balance in the senior staff with respect to disciplines involved in both plant production and protection. One entomologist was replaced by a plant pathologist (with particular expertise in plant disease diagnostics and extension and applied IPM). We have added a shared faculty member for organic agriculture to meet a growing need that crosses both plant production and plant protection. We disagree with the PREP panel conclusion that we have only one individual working in the area of IPM. We strongly believe we are all working toward IPM solutions to pest management problems across the disciplinary areas represented within the portfolio. We believe we have demonstrated marked improvement through more balanced examples and have scored our efforts at 3.

Quality – Significance of Outputs and Findings

Clarify if outputs and outcomes information are being received by end-users.

2006 Score: 2.5

2005 Score: 2

Rationale:

We are focusing on reporting significant impacts of work supported by CSREES on end-users. Measurable impact stories are captured in Plan of Work accomplishments reports, CRIS impact statements and through impact reporting by multi-state research/extension committees. The Science and Impact web page reports impacts of work on issues funded through CSREES that are important at the local level. Across the agency we are emphasizing reporting of outcomes and impacts and have universally adopted the Logic Model concept for this and all other portfolios. While we do not believe we have reached the goal of a score of 3, we believe we have demonstrated improvement through more balanced examples and have scored our efforts 2.5.

Quality – Stakeholder Input

A systematic method needs to be developed to get information into the hands of end-users.

2006 Score: 2.5

2005 Score: 2

Rationale:

Discovery and implementation research gets into the hands of end-users through Cooperative Extension system educational programs and to students through formal academic educational programs of our partner institutions. CSREES facilitates these activities through a variety of funding mechanisms. CSREES NPLS participate in stakeholder sessions that include research, extension and academic faculty, as well as

agricultural commodity, community and trade groups. Within the limits of existing funds we are trying to engage in additional workshops and information exchange opportunities to maximize our interactions with diverse stakeholder interests. A number of newer, more cost-effective methods are being employed, including webcasts and video-linked conference calls. The eXtension initiative has established a number of user driven communities of practice (COPs) that build into their structure continuous input from a broad spectrum of users and information providers. Several of the early eXtension COPs relate to pest management. In addition, the Pest Information Platform for Extension and Education (PIPE) has provided an effective working two-way network for communication to address the soybean rust problem. We foresee this expanding to other significant pest and disease issues. While we do not believe we have reached the goal of a score of 3, we believe we have demonstrated improvement through more balanced examples and have scored our efforts 2.5.

Quality – Appropriate Methodology

Increase evidence that all KAs are using cutting edge technology for generating, gathering, and analyzing data.

2006 Score: 2.7
2005 Score: 2

Rationale:

The plant protection portfolio of programs fund activities that include important cutting edge technologies ranging from new applications for applied mission-oriented problems to development of new methods of analysis and discrimination for emerging pests and diseases that might have adverse effects on the Nations agricultural bio-security. Examples included as evidence in this update include GIS/GPS technology used in precision application of pest management tactics, DNA barcoding for high throughput screening and identification of potential pest species, sophisticated and advanced pest modeling, decision support software for end-user pest management programs at the farm or grower level, and rapid forecasting tools for pest prediction. Some constraints on adoption and funding for research is limited by available resources; however, we are striving to maximize the available funds to include developmental and fundamental research at the cutting edge, particularly in areas of extremely high priority, such as agricultural biosecurity. While we do not believe we have reached the goal of a score of 3, we believe we have demonstrated improvement through more balanced examples and have scored our efforts 2.7.

Performance – Portfolio Comprehensiveness

Increase evidence of KA comprehensiveness.

Outputs reporting should be more comprehensive.

2006 Score: 2
2005 Score: 2

Rationale:

For this update, and for all future reporting and evaluation updates, we have established sub-groups of National Program Leaders within the portfolio to ensure that reporting for each Knowledge Area follows the same guidelines and reporting parameters across the portfolio. In this way we will report equally with highly significant accomplishments, outputs, outcomes and impacts for each area of the portfolio. While we do

not believe we have reached a score higher than that reported by the PREP panel, we believe we have laid a foundation for improvement through more balanced examples; for this reporting period we concur with the previous score of 2.

Performance – Portfolio Timeliness

Provide adequate evidence for project completion time.

2006 Score: 2
2005 Score: 2

Rationale:

While the panel believed that most projects were completed on time, evidence that this is the case was not presented. Over time, with development of better reporting, tracking and information synthesis capabilities that are currently underway we will be able to provide more concrete statistics on the percentage of projects meeting this desired objective. At times impact and all outcomes are not evident until after the program is completed/done. CSREES is unable to collect information after the project terminates, even though outcomes and the impacts may follow years after termination. The PREP Panel wanted to see data on how many funded projects were completed within the timeframe proposed or funded. In the initial self-study these data were not presented; however, we believe that these data could be made available. CRIS could probably determine the numbers of projects that terminate on time and could provide data on no cost extensions, if this is requested. Presently, information on the number of no-cost extensions for research projects and estimates of acceptable rates of no-cost extensions are not available.

Extensions may occur for a variety of reasons and should not be considered as a negative; however, the data should be available (see: Agency Response to Appropriate Methodology, below). Although we have demonstrated some limited improvement we have scored this area at the same level as the PREP panel at a 2.

Performance – Agency Guidance

Provide efficient and comprehensive information concerning the Portfolio's management process.
Better define NPLs management responsibilities.

2006 Score: 2.7
2005 Score: 2

Rationale:

Most the management processes and the management responsibilities of National Program Leaders are the same for all portfolios across the Agency. For future external PREP (Portfolio Review Expert Panel) site reviews more extensive background information on program management and roles of individuals involved in the portfolio will be presented. For our Plant Protection group we instituted a reporting process to update the activities we are engaged in annually. We think the level of engagement is remarkable. The summary list is attached to this report. Management and leadership activities are included for most of the NPLs involved in plant protection. We believe we have demonstrated improvement through more balanced examples and now score our efforts 2.7.

Performance – Portfolio Accountability

Increase the amount of sufficient data used for evaluating the Portfolio's accountability.

2006 Score: 2.2
2005 Score: 2

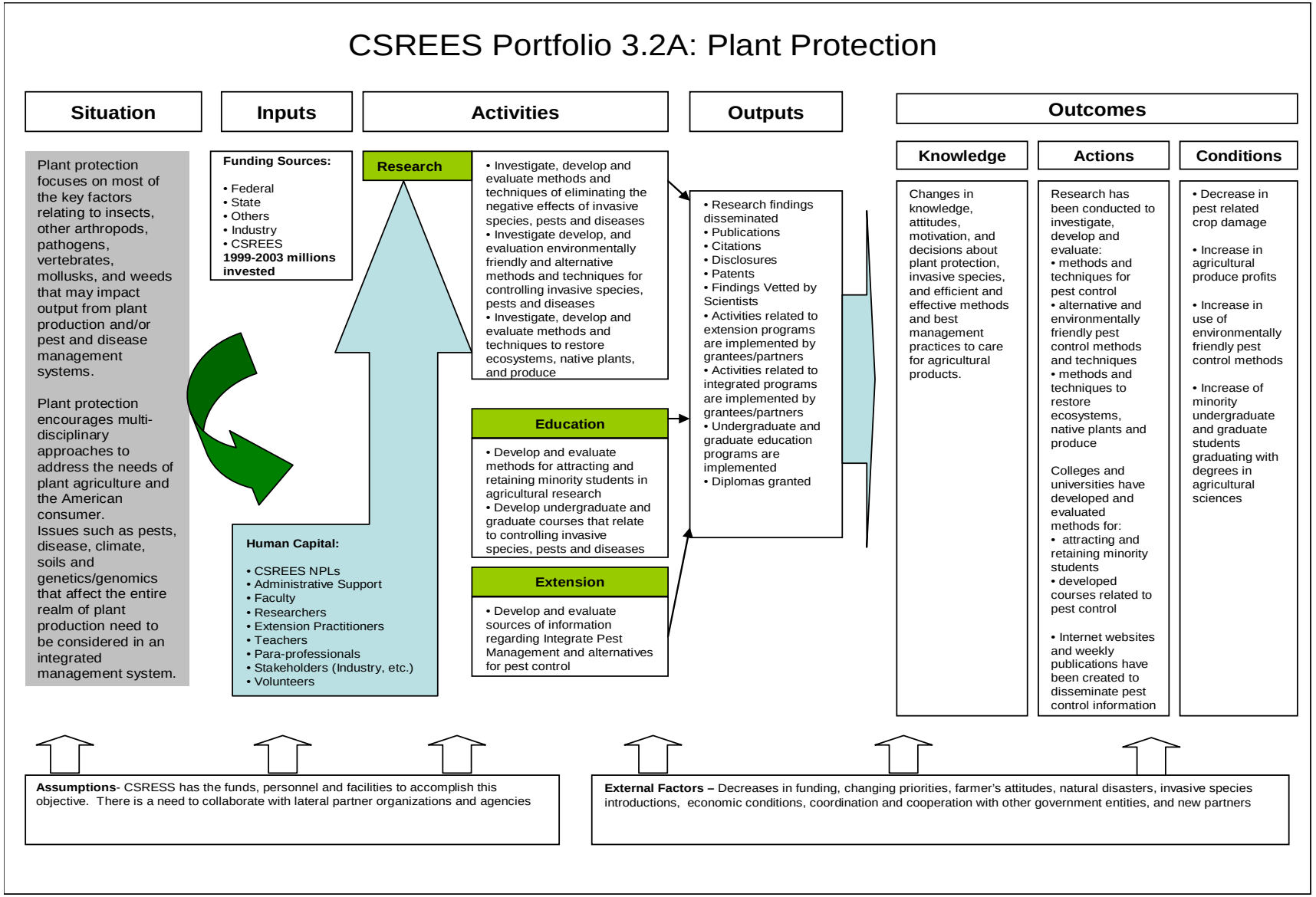
Rationale:

CSREES is investing a significant effort and resources to improve our ability to extract and synthesize data to increase our level of accountability. The One-Solution initiative provides the focal point for these efforts. One-Solution will incorporate and improve existing databases for reporting currently in use such as the Current Research Information System (CRIS), the web-based Plan of Work reporting system, and other reporting systems in use. The Science and Education Impact reporting system search capability is currently being improved. The internal grant reporting and tracking system CREEMS and the web-based Peer Review System are also improving over time and will enable better reporting and tracking of both competitive and non-competitive grants. CSREES has established an internal group, the Planning and Accountability Team (PACT), under the leadership of the Associate Administrator, to guide and oversee development of planning and evaluation activities across the Agency in a systematic manner. Post-termination reports are not required by the Agency; however, we could request that partners provide this information to us for programmatic purposes. There are very few data on conditional and behavioral changes or adoption of new strategies and methodologies by our end-users and this information would be useful; however, funding to enable gathering this information is problematic. We have reached a consensus among the group to score our efforts in this area at 2.2 to reflect some progress.

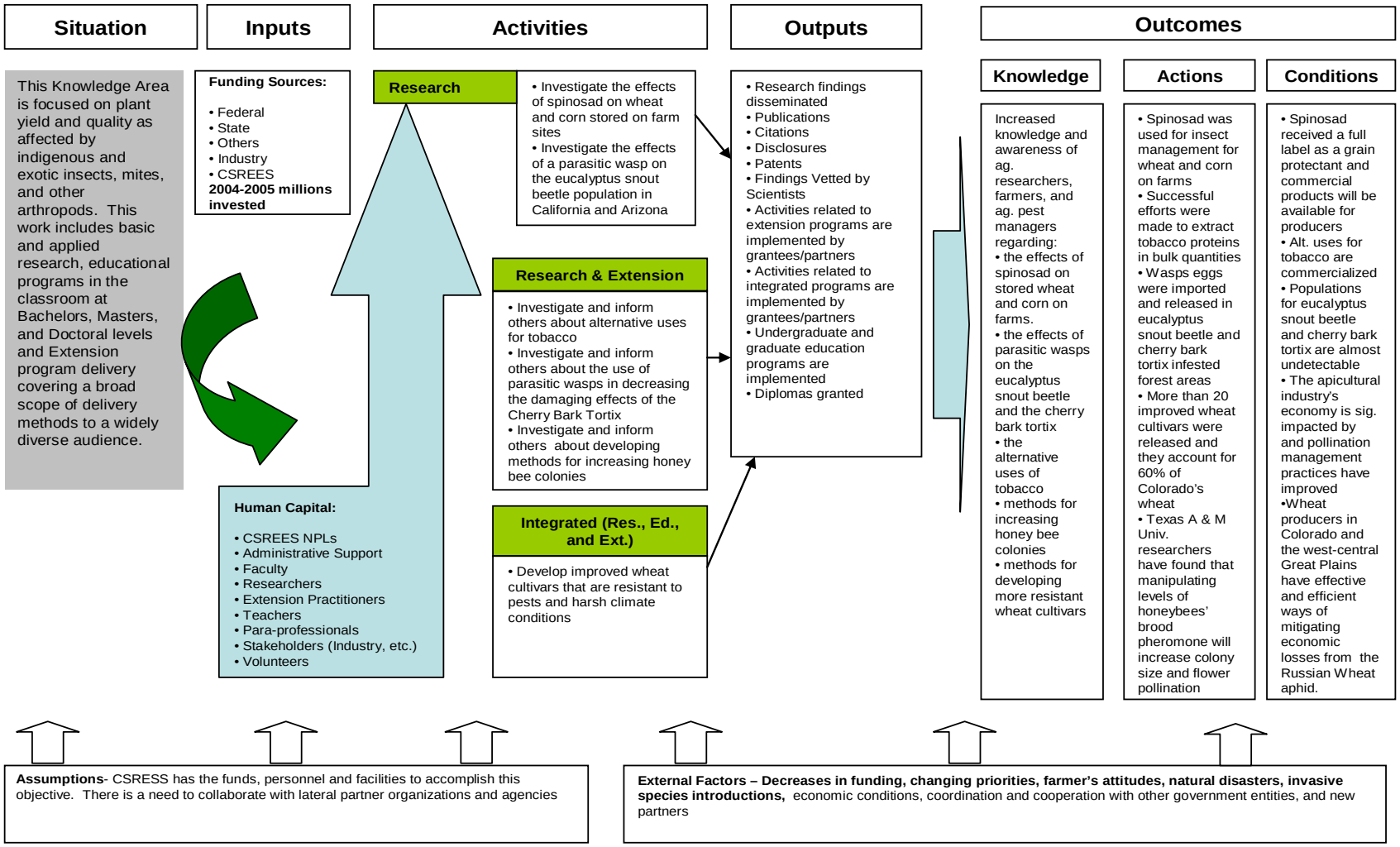
IV. Summary

Overall, we believe we have made significant progress across the portfolio of programs, but acknowledge that we can still improve in many areas. An analysis in the funding Tables for the KAs in the portfolio shows grow and focus in the overarching areas of the portfolio. However, whether the growth in some areas represents a trend is uncertain and further analysis awaits the passage of additional funding cycles. Incorporating the higher education component remains a significant challenge. We believe that we have made strides toward achieving a balanced and forward looking portfolio of programs including fundamental and mission-linked applied research and extension and are working toward greater incorporation of the higher education component into the Plant Protection Portfolio.

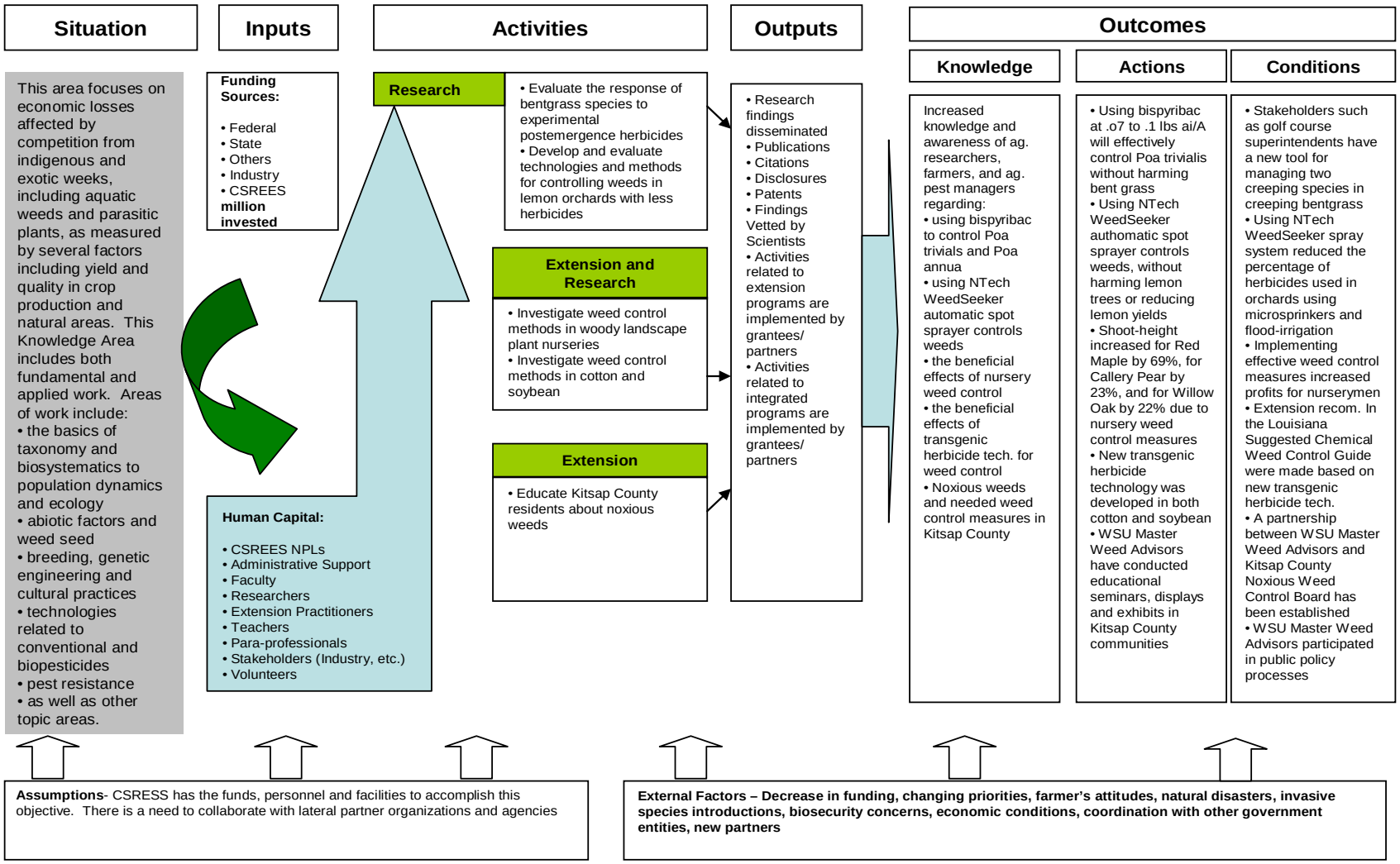
APPENDIX A: Logic Models



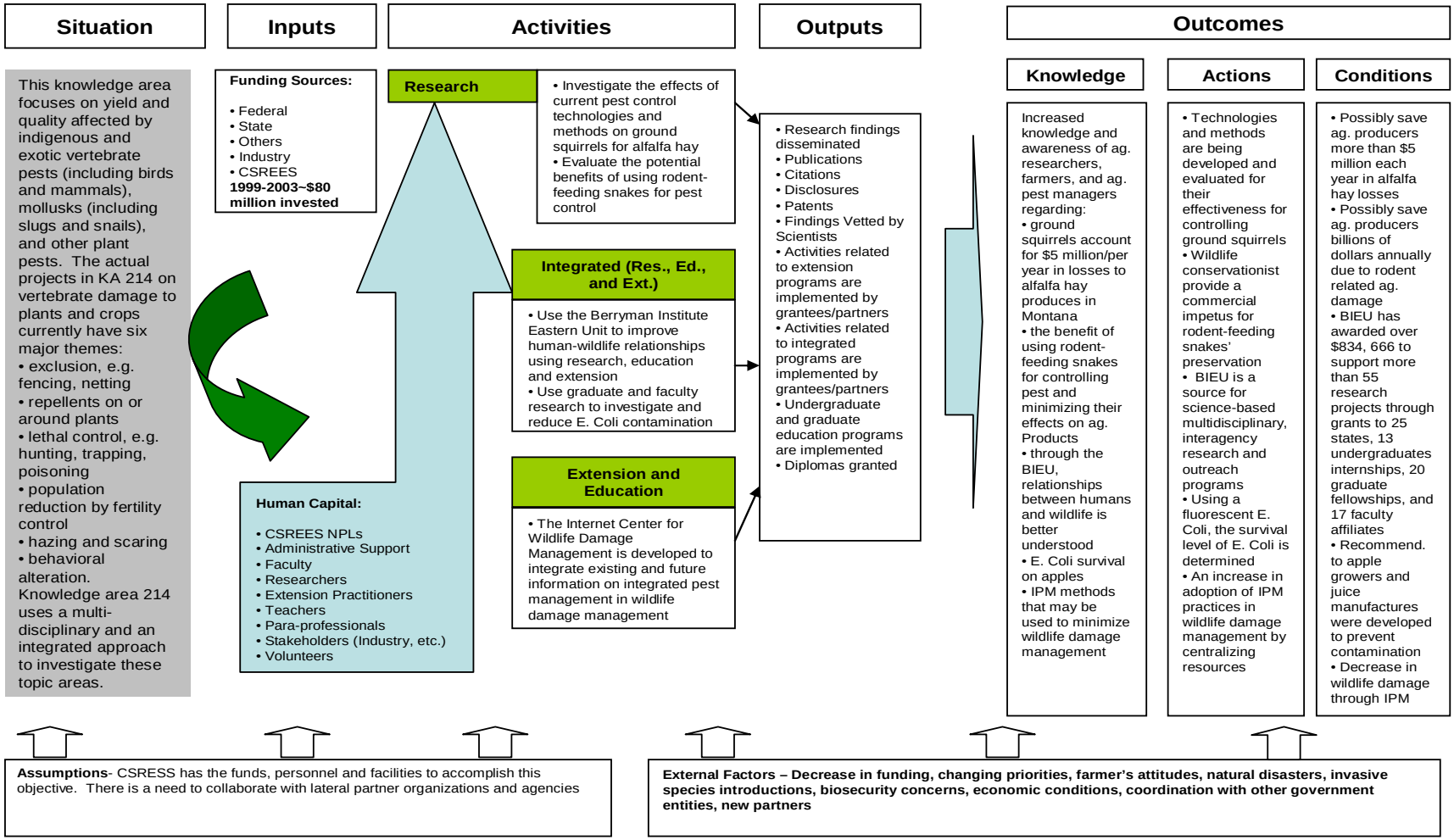
KA 211: Insects, Mites and Other Arthropods



KA 213: Weeds Affecting Plants



KA 214: Vertebrates, Mollusks and Other Pests



KA 215: Biological Control of Pests

Situation

In the broader context, biological control is among a number of other pest management strategies generally termed "bio-based." These include: microbial control, behavior-modifying tools, genetic manipulation, use of transgenic corps, and plant immunization . This area focuses on classical, augmentative, or inundative use of natural enemies (including microbial biological control agents) to manage plant pests (pathogens, insects, mites, nematodes, weeds, vertebrates, etc.)

Knowledge area 215 uses a multi-disciplinary and an integrated approach to investigate these topic areas.

Inputs

Funding Sources:

- Federal
- State
- Others
- Industry
- CSREES

1999-2003~$80 million invested

Human Capital:

- CSREES NPLs
- Administrative Support
- Faculty
- Researchers
- Extension Practitioners
- Teachers
- Para-professionals
- Stakeholders (Industry, etc.)
- Volunteers

Activities

Research

- Evaluate fire ant control measures in nursery production
- Investigate using fungi as control agents for insect pests
- Investigate using bacteria for enhancing safety of biocontrol for crops

Education and Research

- Develop and evaluate methods for attracting and retaining minority students in agricultural research

Extension and Research

- Investigate the negative effects of Fusarium Yellows and biocontrol methods for controlling this fungus and inform primary stakeholders
- Investigate the negative impacts) of invasive plants on ecosystems and possible biocontrol methods fro controlling them and inform primary stakeholders

Outputs

- Research findings disseminated
- Publications
- Citations
- Disclosures
- Patents
- Findings Vetted by Scientists
- Activities related to extension programs are implemented by grantees/partners
- Activities related to integrated programs are implemented by grantees/partners
- Undergraduate and graduate education programs are implemented
- Diplomas granted

Outcomes

Knowledge

Increased knowledge and awareness of ag. researchers, farmers, and ag. pest managers regarding:

- *ant control measures and nursery plant production*
- *beneficial usage of fungi for insect pest control*
- *beneficial usage of bacteria for biocontrol*
- *best methods for attracting and retaining minority students in agricultural research*
- *the negative effects of and best methods for controlling Fusarium Yellow*
- *the negative effects and best methods for controlling invasive plants*

Actions

Researches have:

- *investigated the use of imported fire ants for biological control*
- *discovered that the protein called Mcl1 allows fungus to circumvent the insect's attempt to avoid infection*
- *genetically improved the bacterium Bacillus cereus using genetic mutant knockout techniques*
- *shown that native amphibians are neg. affected by plant invasions*
- *eval. sugar beet varieties and breeding lines for reaction to Fusarium Yellow in the Big Horn Basin*
- 12 minority students gain exp. In microbial genomics, plant pathology and other ag. sciences

Conditions

- Using fire ants will reduce the cost of environ. Impact of chemical management of pests
- Scientists are enabled to manipulate other microbes that lack Mcl1
- Farmers are able to access an effective biological agent for manag. of crop diseases
- Increased graduate minority enrollment in ag. Sciences
- Sugar beet yields have incre. from 13.6 T/A to 22.4 T/A
- Development of biological control has resulted in recolonization of native plants and animals of formally uninhabitable wetlands & sig. reduction in pesticide input in sensitive wetlands

Assumptions- CSRESS has the funds, personnel and facilities to accomplish this objective. There is a need to collaborate with lateral partner organizations and agencies

External Factors – Decrease in funding, changing priorities, farmer's attitudes, natural disasters, invasive species introductions, biosecurity concerns, economic conditions, coordination with other government entities, new partners

KA 216: Integrated Pest Management Systems